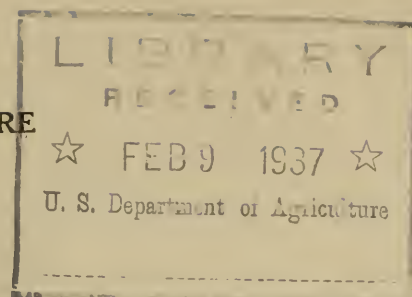


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CANNED VEGETABLE PRICES

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FACTORS THAT INFLUENCE PRICES OF CANNED VEGETABLES

This study of the factors that cause prices of canned vegetables to fluctuate was conducted, for each of the canned vegetables, by comparing the size or amount of each of the price-influencing factors with the average market price for each of the 11 years, 1921-22 to 1931-32. It was found that when certain items, such as pack, carry-over, supplies of competing vegetables, etc. were high the price was usually low, and when these items were low, price tended to be high. It was also found that when certain items, such as the consumer purchasing power, were high, prices of canned vegetables tended to be high, and vice versa.

These price-influencing factors do not move together. Often the stimulating effect on price caused by a short pack is offset by low consumer purchasing power, as in the case of peas in 1931-32. A combination of a large pack and low consumer purchasing power usually causes prices to decline to lower levels than if only one of these factors were operating to depress prices. The 1931 corn pack, which amounted to more than 19,000,000 cases, was accompanied by low consumer purchasing power, and prices of canned corn were the lowest on record.

Each year certain factors operate to stimulate prices and other factors tend to depress prices. By listing all of these factors for each year, and canceling out those which offset each other, we get the factors which explain price changes. The extent of the change in price from one year to the next usually corresponds to the extent of change in the important price-influencing factors.

In order to explain all of the price change each year it is necessary to consider a large number of items.

The following price-influencing factors were analyzed in this study: (1) pack, (2) carry-over, (3) consumer purchasing power, (4) imports, both fresh and canned, (5) competing supplies of fresh vegetables, (6) home canning, (7) competition in the case of each commodity from other canned vegetables, and (8) influence of the price level of all canned vegetables as a group on the fluctuations in price of each of the commodities.

Some of these factors were of minor importance and their influence during some years was negligible. There were others, however, which usually explained most of the change in price. These important factors are the ones which should receive most attention when a canner is determining his sales policy and production plans.

The important factors influencing each of the principal canned vegetable prices are as follows. Corn and peas: (1) Pack, (2) carry-over from the previous season, and (3) consumer purchasing power. Tomatoes: (1) Tomato pack and (2) consumer purchasing power. String beans: (1) Pack of string beans, (2) supplies of other canned vegetables, and (3) supplies of string beans on the fresh market. Spinach: (1) Pack of spinach for the current year, (2) pack of spinach for the previous year, and (3) consumer purchasing power.

Consumer purchasing power can be measured by the general trend in prices of all commodities or by an index of employment. This factor is especially important when employment is very high as in 1929-30 and when it is very low as in 1931-32.

Prices of canned vegetables tend to move together. Often a very large pack of one of the canned vegetables may cause its prices not to move up so rapidly as the others or even may cause it to decline. In general, however, an upward movement in prices of foods, especially other canned vegetables, exerts a stimulating influence on prices of each of the canned vegetables. A decline in price of any of the canned vegetables accordingly tends to depress prices of each of the others. In spite of a relatively short corn pack in 1930, prices of canned corn did not advance appreciably, because of low prices of other canned vegetables. Prices of canned peas in 1931-32 were low when the pack was short, partly because of low prices of canned corn and other canned vegetables and partly because of very low employment.

ANALYSIS OF FACTORS AFFECTING PRICES OF CANNED VEGETABLES

The combined pack of all canned vegetables in 1932 was below average and the pack of each, except tomatoes, was smaller than the 1931 pack. In spite of the fact that prices of canned vegetables during the 1931-32 season were very much below average, consumption of canned vegetables was relatively low because of low consumer purchasing power. In the case of those vegetables of which there were relatively large packs in 1931, the low level of consumption resulted in large stocks being carried over into the 1932-33 season. This was especially true of canned corn. Supplies of canned vegetables (consisting of pack plus carry-over) for the 1932-33 season are below average and consumer purchasing power continues at a low level.

CANNED CORN

canned

The supply of/corn for the 1932-33 season, August 1 to July 31, is considerably smaller than that of last year and smaller than the average annual supply of the last 10 years. The carry-over of canned corn from the 1931-32 season (as of August 1) was approximately 6,500,000 cases, which is the second largest on record, the largest having been the carry-over from the 1926-27 season. The 1932 pack was reported to be the equivalent of 9,358,000 cases of 24 No. 2 cans. This is the smallest pack since the very short pack of 1921. The principal vegetables competing with canned corn are canned peas and tomatoes. The supply of canned peas for 1932-33 is reported to be about 13,000,000 cases, which is below average, and the supply of canned tomatoes

may be about 12,000,000 cases which is somewhat larger than last year's supply but below the average of the last five years.

Demand, Price, and Purchasing Power

The demand for canned corn during recent years has been declining. This is true in spite of the fact that during 1931-32 more canned corn moved into consuming channels than during the 1930-31 season. The increase in disappearance during the 1931-32 season was about 4 or 5 per cent. This increase was accomplished, however, by a reduction in prices of from 30 to 35 per cent. Had prices of canned corn during 1931-32 been at the same level as those of 1930-31, it appears obvious that the consumption of canned corn would have been considerably below that of 1930-31.

The principal factor contributing to this decline in demand was the decreased purchasing power of consumers which was the result of unemployment in cities and of low prices of agricultural commodities in the rural districts. The competition of increased quantities of fresh vegetables has also contributed to the decline in sales of canned corn. An early appraisal of the effect of these factors on the prospects for canned corn in 1932-33 was released by the Bureau of Agricultural Economics on August 26 and was summarized in the following sentence: "The prospects for the sale of canned corn this year appear to be slightly better than a year ago".

Prices in Baltimore of canned corn, standard grade, cream style, have advanced from $57\frac{1}{2}$ cents per dozen No. 2 cans in August, to 60 cents on December 15. Chicago prices have followed a similar advance. During the corresponding period in 1931, prices in Baltimore declined from 90 to $62\frac{1}{2}$ cents per dozen. Stocks of canned corn in canners' hands on December 1 were reported by the Corn Canners' Institute to be 11,608,000 cases compared with 12,467,000 a year earlier.

Carry-over, Packs and Price Relations

For each of the seasons 1921-22 to 1924-25 the packs of canned corn moved out of canners' hands before the end of the season and the carry-overs in canners' hands were negligible.

The 24,000,000 case pack of 1925 was considerably larger than the trade would absorb; thus there was a carry-over of around 6,000,000 cases at the end of the season. The pack of 1926 was also larger than the disappearance for that season and the previous large carry-over was increased, so the carry-over into the 1927-28 season was probably the largest in the history of the industry. Although the packs of 1927-28 and 1928-29 were smaller than the disappearance for those two seasons, the carry-over nevertheless continued large. In 1929-30 the pack was about the same as the apparent consumption so that the carry-over at the end of the season was about the same as it was at the end of the previous season.

The 1930 pack was about average, but was considerably smaller than the 1929 pack. Because of this relatively short pack, prices of canned corn continued high relative to the prices of other canned and of fresh vegetables. The effect of these relatively high prices was to decrease the apparent

consumption for that year by about 2,000,000 cases under that of 1929-30; a substantial quantity was carried over into the 1931-32 season which, when added to the large pack of 1931, made a supply for the 1931-32 season that was exceeded only by the large supplies of 1925-26 and 1926-27. Owing to the decrease in demand that had occurred, these supplies were very burdensome, and prices declined to record low levels. In spite of the increase in sales of canned corn in 1931-32 over those of 1930-31, the carry-over at the end of the season was very large, being equivalent to about four or five months' consumption.

Supply Less for 1932-33

The supplies of canned corn for 1932-33 are about equal to the apparent consumption of canned corn during 1931-32. With a demand similar to that of 1931-32, a supply the size of that of the current year would be absorbed. It may be impracticable, however, to move the entire season's supply into consuming channels before the end of the season. Probably, only the difference between the total supplies and the nominal carry-over should be compared with the prospective consumption for the season.

Shift of Carry-over to Cannery

Since the advent of hand-to-mouth buying in the canning industry, the function of holding and storing canned goods has been shifted, to a very large extent, from wholesaler and retailer back to the canner. Consequently, stocks at the end of the year, which in earlier years may have been in wholesalers' or retailers' hands, have in recent years been in cannery warehouses. Carry-overs in cannery warehouses may, therefore, be a normal condition so long as the practice of hand-to-mouth buying continues. A nominal carry-over in most industries is not considered a factor depressing to prices. It is probable that the corn-canning industry may come to consider a regular carry-over in cannery warehouses of about 2,000,000 cases as being normal and, therefore, as having little effect on prices early in the following season.

Factors Affecting Price Changes

Changes in the annual average prices of canned corn during the last 11 years have been affected by changes in demand and by the size of the pack and carry-over of canned corn available for consumption. Other factors that have influenced changes in prices of canned corn have been the supplies of other canned vegetables, mainly peas, and the supplies of fresh vegetables. Since 1921-22 prices of fancy grade canned corn have been declining in relation to prices of the other grades. During 1931-32 the premium paid for fancy over extra standard and standard was very small.

The extent to which the pack and carry-over of canned corn and the purchasing power of consumers have affected prices of canned corn during the last 11 years is illustrated in Figure 1 and in Table 1. Actual prices were much lower than those estimated from pack and carry-over for the years 1921-22, 1922-23, and 1931-32. It is evident that these supply factors alone do not explain all of the price. It is impracticable, because of limited space, to illustrate the effect of each one of the other factors affecting the price of canned corn. We shall, therefore, show the effect of only one of the

important remaining factors, namely, changes in consumer purchasing power.

There are a number of indices that may be used to represent consumer purchasing power, but no one of these is entirely satisfactory. The one selected for this study was the Federal Reserve Board's index of employment which measures fairly satisfactorily the purchasing power of a certain income group. This index was "lagged" one year because of the characteristic lag in the relationship between employment and consumer demand for foods. The fact that employment was relatively low during 1920-21, 1921-22, and 1930-31 helps to explain why prices of canned corn were lower for each of the years following than were the prices estimated from supplies of canned corn (Fig.1)

The relation between prices of canned corn and the index of employment indicates that, so long as the index of employment remains between 95 and 105 per cent of the 1923-1925 level, there is no appreciable effect on the prices of canned corn. As the employment index declines below 95 the effect on prices of canned corn becomes much greater.

Prices During the Season

The effect of the previous year's price and carry-over on the seasonal movement of prices of canned corn is illustrated in Figure 2. As indicated above, the annual average price is for the most part determined by the size of the pack and carry-over of canned corn, together with an index of employment.

The relative effect of these factors on the course of monthly prices varies during the season. For example, during the early part of the season before the size of the year's supply is generally known to the trade, the price of canned corn is affected principally by the visible supplies of canned corn and prices of canned corn during the latter part of the previous season. The visible supplies at this season of the year are made up, for the most part, of carry-over. Consequently, during the first few months of a season following a year when the pack was unusually large and prices were relatively low, prices of canned corn are likely to be closely related to the prices of the latter part of the previous season and, if the supplies of canned corn for the year being studied are smaller than those of the previous year and the average annual prices correspondingly higher, the prices during the first few months are usually lower than the average for the season.

This situation is illustrated in the lower half of Figure 2, where the seasonal movement of prices is shown for those years having relatively small supplies of canned corn and preceded by years having relatively large supplies. Because of the influence of relatively heavy carry-overs from the previous season and because of relatively low prices for the last few months of the previous years, prices during September, October, November, and December were below the season's average. That situation is typical of the 1932-33 season. As soon as the size of the current supplies became effective, prices advanced and were above the average of the year from January to June. The upper half of Figure 2 illustrates the seasonal movement of prices in years when the supplies were relatively large and were preceded in each case by a year of small supply.

Table 1.- Factors affecting prices of canned corn, 1921-22 to 1932-33

Year beginning Aug. 1	:	Pack <u>1/</u>	:	Carry-over from previous year <u>2/</u>	:	Index of employment (1923-1925 = 100) <u>3/</u>
	:	<u>1,000 cases</u>	<u>4/</u>	<u>1,000 cases</u>	<u>4/</u>	
1920-21	:	15,040	:		:	88
1921-22	:	8,843	:	3,040	:	85
1922-23	:	11,419	:	230	:	104
1923-24	:	14,106	:	110	:	100
1924-25	:	12,131	:	70	:	97
1925-26	:	24,320	:	240	:	101
1926-27	:	19,069	:	5,820	:	100
1927-28	:	10,347	:	8,900	:	97
1928-29	:	14,497	:	3,750	:	100
1929-30	:	17,487	:	3,250	:	95
1930-31	:	15,692	:	3,250	:	79
1931-32	:	19,415	:	3,450	:	68
1932-33	:	9,358	:	6,650	:	

1/ National Cannery Association 1921-22 to 1926-27; 1927-28 to 1929-30 Census Bureau; 1930-31 and 1931-32 Bureau of Foreign and Domestic Commerce.

2/ Estimated from data supplied by canners.

3/ Federal Reserve Board.

4/ Case of 24 No. 2 cans.

Table 2.- Estimated and actual price in cents per dozen No. 2 cans of standard grade corn

Year beginning Aug. 1	:	Estimated from pack only	:	Adjustment for carry- over	:	Adjustment for employ- ment	:	Price explained by these 3 factors	:	Actual price <u>1/</u>	:	Deviations of estimates from actual price
	:	<u>Cents</u>	:	<u>Cents</u>	:	<u>Cents</u>	:	<u>Cents</u>	:	<u>Cents</u>	:	<u>Cents</u>
1921-22 ..	:	93	:	+ 1	:	- 5.5	:	88.5	:	88	:	+ .5
1922-23 ..	:	91.5	:	+ 5.5	:	- 8.0	:	89.0	:	91	:	- 2.0
1923-24 ..	:	90.5	:	+ 5.5	:	0	:	96.0	:	94	:	+ 2.0
1924-25 ..	:	91.5	:	+ 5.5	:	0	:	97.0	:	95	:	+ 2.0
1925-26 ..	:	85.5	:	+ 5.5	:	0	:	91.0	:	89	:	+ 2.0
1926-27 ..	:	88	:	- 3.	:	0	:	85.0	:	83	:	+ 2.0
1927-28 ..	:	92.5	:	- 4	:	0	:	88.5	:	89	:	- .5
1928-29 ..	:	90	:	0	:	0	:	90.0	:	89	:	+ 1.0
1929-30 ..	:	89	:	+ .5	:	0	:	89.5	:	92	:	- 2.5
1930-31 ..	:	89.5	:	+ .5	:	0	:	90.0	:	92	:	- 2.0
1931-32 ..	:	88	:	0	:	-13.5	:	74.5	:	73	:	+ 1.5
1932-33 ..	:		:		:		:		:		:	

1/ Prices analyzed were those paid by certain grocery chains.

CANNED PEAS

The pea pack in 1932 was reported to be 10,366,000 cases compared with 13,500,000 in 1931 and a 5-year average 1927-1931 of 17,000,000 cases. The percentage of sweets in this year's pack was much smaller than usual. The carry-over of peas from the 1931-32 (May 1 to April 30) season was reported to be approximately 3,000,000 cases, which is about average for normal years. Thus the supply of canned peas for 1932-33 appears to be approximately 13,000,000 cases. As stated in this Bureau's release of July 26, this is only about 60 per cent of the 1929-30 supply. The market demand for canned peas has declined considerably since 1929-30, probably somewhat more than the 40 per cent decline in supplies. After taking into account the supplies of canned peas, the decrease in demand, and the supplies of competing vegetables, prospects for canned peas this year appear slightly better than in 1931-32 but not quite so favorable as in 1929-30. No. 2 Standard Alaska 3's were selling in Wisconsin from 90 to 92½ cents per dozen on December 15 compared with 87½ cents a year earlier and \$1.05 on that date in 1929.

Supplies, Demand, and Carry-over

Prior to 1924-25 the annual supplies of canned peas usually moved out of canners' hands before the end of the year. The 19,000,000-case pack in 1924, however, was some 4,000,000 cases larger than the consumption that year. Each year since, there has been a carry-over of canned peas ranging from about 3,000,000 to 6,000,000 cases. The trend in the packs of canned peas was decidedly upward from 1921 to 1930. There has also been an upward trend in the consumption of peas during the same period, but the increases in size of packs up to 1930 were greater than the increase in consumption. The 1931 pack was decidedly below the trend, but owing to the heavy carry-over from 1930-31, supplies were much larger than the consumption (consumption having declined), and approximately 3,000,000 cases of peas were carried over into the 1932-33 year. Consequently, it has not been possible to decrease, except temporarily, the surplus supplies which have resulted in carry-overs. These carry-overs have played no small part in the determination of prices during the following year.

Supply Less for 1932-33

Owing to the smaller pack this year and a carry-over of only average proportions, the supply of the 1932-33 year is well below that for any year since 1921-22. After taking into account the relatively rapid decline in consumption of canned peas during the last 2 years and the prospects for a continuation of this decline, it appears probable that practically all of the 1932-33 supplies may move into consuming channels by the end of the year, if prices are not held too high, and that the carry-over at the end of the year may be the smallest since 1923-24.

Prices and Factors Affecting Prices

Prices of standard and extra standard grades of canned peas declined after 1923-24. This downward trend, however, was temporarily retarded by slight advances in 1927-28 and 1929-30. The 1927-28 advance was due primarily to a short pack in 1927, whereas the 1929-30 increase was the result of a

general upward movement in prices of all commodities. Prices of fancy grade peas, during this same period, were more erratic, but in general followed the decline of the other grades.

Prices of canned peas, especially for the standard and extra standard grades, during the last 10 years have been affected; for the most part, by the size of the packs, the size of the carry-overs, and consumer purchasing power. (Tables 3 and 4). The effect of carry-over on prices was especially noticeable in 1926-27, 1927-28, and in 1931-32 when the carry-overs from the previous years were unusually large.

The influence of these three price-making factors on the price of canned peas is illustrated in Figure 3. For all of the years prior to 1925-26, except 1921-22, the actual price was considerably higher than that estimated from the size of the pack and for all of the years following and including 1925-26, except 1929-30, the actual price was lower than that estimated from the pack. The carry-over for each of the years since 1925-26 has been large relative to the period prior to 1925-26. These years of relatively large carry-over coincide with the period when actual prices were below the prices estimated from pack, and the period of no carry-over coincides with the years when actual prices were above the estimated price. It is possible to explain a large part of the difference in each instance by the carry-over of canned peas from the previous year. In some years, however, prices were not the same as the estimate based on the two factors, pack and carry-over. The principal reason why these two factors would not explain all of the price in certain years was because of consumer purchasing power. By adjusting the price as estimated from pack and carry-over in accordance with the changes in the index of employment for the previous year, it was possible to estimate with a fair degree of accuracy the annual average prices for canned peas for the most of the years studied. (Fig. 3) The data for 1932-33 corresponding to those used in the price study are as follows: Pack was 10,366,000 cases; carry-over was reported at approximately 3,000,000 cases; index of employment for the previous year (1931-32) was 68. This study indicates that had this combination of price-making factors existed for any one of the last 12 years the price would have averaged about \$1.00. The comparable price in 1931-32 was 90.5 cents per dozen.

Prices During the Year

No distinct seasonal trend characterizes wholesale prices of canned peas. During the two or three months immediately following the pack, prices tend to fluctuate within wider ranges than during the remainder of the year. This can be explained in part by the fact that the supplies for the season are not generally known to the trade until the new crop begins moving, in volume, into consumption. During years when the carry-over from the previous season was unusually heavy, prices during the first few months have been affected more by the size of the carry-over than by the size of the current season's pack. Usually by August the price of canned peas begins to adjust itself to the supplies of the new season. Prices during the last two or three months of the packing year have for certain years either advanced or declined sharply because of the size of the stocks near the end of the marketing season.

The low prices of the last months of 1931-32 continued through May and June and a part of July but an adjustment to 1932-33 supplies during July and August resulted in price advances. No. 2 Standard Alaska 3's at Chicago averaged 82½ cents per dozen in August compared with 92½ cents in June. On December 15 this grade was quoted at 92 cents on the Chicago market.

Table 3.- Factors affecting canned pea prices, 1921-22 to 1931-32

Year beginning May 1	:	Pack 1/ 1,000 cases	:	Carry-over from previous year 2/ Million cases	:	Index of employment (1923-1925=100) 3/
1920-21	:	12,317	:	4.0	:	88
1921-22	:	8,207	:	4.0	:	85
1922-23	:	13,042	:	0	:	101
1923-24	:	13,948	:	0	:	100
1924-25	:	19,315	:	0	:	97
1925-26	:	17,816	:	4.3	:	101
1926-27	:	17,709	:	6.0	:	97
1927-28	:	12,936	:	6.0	:	100
1928-29	:	17,943	:	3.4	:	95
1929-30	:	18,530	:	3.5	:	79
1930-31	:	22,035	:	3.5	:	68
1931-32	:	13,286	:	6.0	:	
1932-33	:	10,366	:	3.0	:	

1/ National Cannery Association 1920-21 to 1926-27; 1927-28 to 1929-30
Census Bureau; 1930-31, 1931-32, Bureau of Foreign and Domestic Commerce.

2/ Estimated from data supplied by canners.

3/ Federal Reserve Board.

Table 4.- Estimated and actual prices per dozen No. 2 cans of standard grade peas, 1921-22 to 1931-32

Year beginning May 1	:	Estimated: from pack only	:	Adjustment: for carry- over	:	Adjustment: for employ- ment	:	Price explained: by these: 3 factors:	:	Actual price 1/	:	Deviations of estimate from actual price
	:	Cents	:	Cents	:	Cents	:	Cents	:	Cents	:	Cents
1921-22	:	119.5	:	- 0.5	:	- 5.5	:	113.5	:	113	:	+0.5
1922-23	:	111.5	:	+17.	:	- 7	:	121.5	:	118	:	+3.5
1923-24	:	109.5	:	+17.	:	+ .5	:	127	:	127	:	0
1924-25	:	98.5	:	+17.	:	+ .5	:	116	:	116	:	0
1925-26	:	101.5	:	- 1.5	:	- 1	:	99	:	99	:	0
1926-27	:	101.5	:	- 9.5	:	+ 1	:	93	:	92	:	+1
1927-28	:	111.5	:	+ 9.5	:	+ .5	:	102.5	:	103	:	- .5
1928-29	:	101.0	:	+ 2.0	:	- 1	:	102	:	99	:	+3.
1929-30	:	100.0	:	+ 2.0	:	+ .5	:	102.5	:	105	:	-2.5
1930-31	:	92.	:	+ 2.0	:	- 2	:	92	:	92	:	0
1931-32	:	110.5	:	-10	:	-10	:	90.5	:	90.5	:	0
1932-33	:		:		:		:		:		:	

1/ Price per dozen No. 2 cans of No. 3 Standard Alaskas, were taken from sales records of certain canned foods brokers in Waukesha, Wisconsin and Milwaukee, Wisconsin.

CANNED TOMATOES

The 1932 pack of canned tomatoes was probably a little above 11,000,000 cases of No. 3's which is somewhat larger than the 1931 pack but below the average of the last 10 years. The carry-over from the 1931-32 season was reported to be smaller than that of a year earlier, consequently the supplies of canned tomatoes for 1932-33 are about the same as those of 1931-32. The supplies of other canned vegetables for the 1932-33 season are below average, but prices continue low because of continued low consumer purchasing power.

Demand and Purchasing Power

The apparent consumption of American canned tomatoes has averaged between 12,500,000 and 13,000,000 cases during the 10-year period ended 1929-30. During this same period the consumption of other canned vegetables was increasing at the rate of 250,000 to 500,000 cases per year. Although the apparent consumption of American canned tomatoes during this period was fairly stable, the consumption of all tomatoes and tomato products appears to have been increasing rapidly. Practically all of this increase in demand, however, appears to have been satisfied from increases in the supplies of fresh tomatoes and from imported canned tomatoes. That portion of the production of United States tomatoes grown for manufacture, which has been replaced by imported canned tomatoes and by fresh tomatoes, has found an outlet through the increased consumption of tomato products, especially tomato juice.

The consumption of all tomatoes, both fresh and canned, appears to be affected by the purchasing power of the consumer and the prices of fresh and canned tomatoes. During the last two years the purchasing power of the consumer has been declining rapidly. Unemployment in urban centers has been increasing and in rural districts the prices of farm products have declined to very low levels.

In spite of low employment and decreased prices of farm products, the consumption of canned tomatoes, during 1929-30 and 1930-31, appears to have been about equal to the average for the 10 years ended 1929-30. The consumption of other canned vegetables during the last two years has been decreasing. One reason for the sustained consumption of canned tomatoes during this period has been the relatively low prices of canned tomatoes.

Factors Affecting Prices

Prices at which American tomato canners can sell their product depend to some extent upon the demand for canned tomatoes and the purchasing power of the consumers, the size of the pack of American tomatoes, together with imports of canned tomatoes, production of fresh tomatoes, imports of fresh tomatoes, especially during the winter months, and the competition from other canned vegetables.

The canner's interest in the factors affecting canned tomato prices depends upon how accurately prices can be estimated from these factors. His sales policy and plans for next year's pack will be influenced by the prices of canned tomatoes for the remainder of the 1932-33 season.

Information concerning some of the factors that affect tomato prices can not be obtained early in the season. For that reason these factors are not included in the following presentation of this study.

The factors which, during the last 12 years, have explained most of the changes in prices of canned tomatoes are: (1) Pack, (2) consumer purchasing power, and (3) competition from other canned vegetables. The most effective measure of the competition from other canned vegetables is the price at which these other canned vegetables sold. The changes in consumer purchasing power are also reflected in the prices of competing canned vegetables. Consequently it was possible to use an index of the prices of all canned vegetables except tomatoes in place of factors numbered 2 and 3 above. This study revealed the fact that prices of canned tomatoes during the first three or four months of each season are influenced to a considerable extent by the level of prices and demand which prevailed during the previous season. Consequently, the price index of competing canned vegetables for the previous year was found to be of considerable value in determining the price of canned tomatoes during the first few months of the crop year, and in determining the average price for the year.

The importance of the competition of other canned vegetables as a factor influencing prices of canned tomatoes should not be underestimated but this factor is not so important as the size of the tomato pack.

The extent to which these factors explained the annual average price of canned tomatoes for each of the years 1921-22 to 1931-32 is shown in Table 6.

These results are illustrated in Figure 4. For two years, 1921-22 and 1930-31, the price estimated from these three factors was the same as the actual price. The departures of the estimated price from the actual price for the remaining years were explained when the other price-influencing factors were used.

Attention should be called to some of these other factors which have been found to affect prices of canned tomatoes. Imports of canned tomatoes were found to be of some significance as a factor affecting prices. The addition of a given quantity of imported canned tomatoes to the supply in the United States did not have the effect on price that an increase of a like quantity of the United States tomato pack would have had on prices. The reason for this difference in effect of canned-tomato supplies on prices is that a large part of the supply of imported canned tomatoes is used by consumers who normally would not buy the American product in similar quantities, and consequently not all of the imported product is sold in competition with American canned tomatoes.

Imports of canned tomatoes have increased rather rapidly during the last 12 years. Table 5 shows that imports of canned tomatoes increased from 36,543 cases in 1919-20 to over 5,000,000 cases during the fiscal year 1929-30. Higher import duties became effective in 1930, and imports declined to about 2,500,000 cases during 1930-31.

Depreciated currencies in those countries that shipped canned tomatoes to the United States, principally Italy, tended to offset a part of the effect of the higher import duties, and in 1931-32 the imports totaled over 3,000,000 cases. Imports for the period July to November 1932 amounted to 1,026,875 cases compared with 1,009,165 cases for the corresponding period in 1931.

Production of fresh tomatoes in the United States, although relatively large in volume, has apparently not affected prices of canned tomatoes to any great extent. The fresh tomatoes coming to market during winter months have been of more importance as a canned-tomato price-determining factor than has the production of all fresh tomatoes. The imports of fresh tomatoes constitute a measure of the quantity of fresh tomatoes on the market during the season when canned tomatoes are usually being sold in large quantities.

Imports of tomatoes for the fresh market during the winter season, November to May inclusive, totaled less than 1,000,000 bushels in 1923-24, whereas in 1929-30 about 2,500,000 were imported. During the last two years imports of fresh tomatoes have declined somewhat. For 1931-32, 2,122,000 bushels were imported. The competition of fresh tomatoes with the canned product appears to be of no more importance in determining the prices of canned tomatoes than is the competition from many other fresh vegetables.

An index of the car-lot shipments of all fresh vegetables is shown in Table 5. The index showing shipments of fresh vegetables to market during the winter months is probably more important as a factor affecting canned-tomato prices than is the index showing shipments for the entire year.

Prospects for canned tomatoes for the 1932-33 season are indicated by a summary of the various factors that affect prices of canned tomatoes. The pack of canned tomatoes, based on latest reports of production of tomatoes for canning, promises to be slightly above 11,000,000 cases. The index of prices of canned vegetables competing with tomatoes for 1931-32 was 87. On December 15 this index was 83. This combination of factors during the period studied would probably have resulted in an average price of about 58 cents per dozen for No. 2 Standards at Baltimore.

Table 5.- Factors affecting canned tomato prices, 1919-20 to 1931-32

Year beginning July 1	: Tomato pack 1/	: Index of shipments of all fresh vegetables 5/	: Net imports, canned 2/	: Product-ion of fresh to-matoes 3/	: Imports of fresh tomatoes 2/	: Index of prices of canned vegetables competing with to-matoes, (1926-27=100)
	: 1,000 cases 4/	: :	: 1,000 cases 4/	: 1,000 bushels	: 1,000 bushels	: :
1919-20	: 10,810	: :	: 37	: 13,360	: :	: :
1920-21	: 11,368	: 61.2	: 59.7	: 15	: 17,108	: 98
1921-22	: 4,017	: 59.7	: 59.5	: 205	: 10,505	: 113
1922-23	: 11,538	: 69.8	: 72.4	: 406	: 17,114	: 115
1923-24	: 14,672	: 78.4	: 76.5	: 765	: 17,363	: 7/ 842 : 117
1924-25	: 12,519	: 84.2	: 84.6	: 2,410	: 18,630	: 7/ 1,202 : 115
1925-26	: 19,770	: 82.7	: 87.3	: 2,776	: 19,568	: 7/ 1,436 : 103
1926-27	: 9,455	: 100.0	: 100.0	: 2,553	: 13,614	: 7/ 2,193 : 100
1927-28	: 13,137	: 105.8	: 104.5	: 3,406	: 17,434	: 7/ 2,008 : 106
1928-29	: 8,539	: 107.9	: 112.2	: 3,861	: 15,553	: 7/ 2,266 : 107
1929-30	: 14,145	: 109.4	: 113.6	: 5,002	: 16,758	: 7/ 2,436 : 109
1930-31	: 16,998	: 110.1	: 116.3	: 2,535	: 16,901	: 7/ 2,024 : 99
1931-32	: 9,573	: 97.1	: 104.5	: 3,051	: 18,881	: 7/ 2,122 : 87

1/ National Canners' Association 1919-20 to 1926-27; 1927-28 to 1929-30 Census Bureau; 1930-31, 1931-32 Bureau of Foreign and Domestic Commerce.

2/ Monthly Summary of Foreign and Domestic Commerce.

3/ Division of Crop and Livestock Estimates.

4/ Case of 24 No. 3 cans.

5/ October to April only, 1926-27 = 100.

6/ July 1926 to June 1927 = 100.

7/ November to May only.

Table 6.- Estimates and actual price per dozen No.2 cans of standard canned tomatoes, 1921-22 to 1931-32

Year beginning Aug. 1.	: Estimated from pack	: Corrections for index: of prices of competing canned vegetables	: Estimated from these 3 factors	: Actual price 1/	: Deviations of estimate from actual
	: Cents	: Cents	: Cents	: Cents	: Cents
1921-22	: 103	: + 7.0	: - 6.0	: 104.0	: 104 : 0
1922-23	: 90	: + 9.5	: + 2.5	: 102.0	: 93 : + 9
1923-24	: 85	: + 11.0	: + 1.0	: 97.0	: 96 : + 1
1924-25	: 88.5	: + 9.5	: + 6.0	: 104.0	: 107 : - 3
1925-26	: 76	: - 4.0	: + 3.0	: 95.0	: 77 : - 2
1926-27	: 93.5	: - 7.0	: + .5	: 87.0	: 88 : - 1
1927-28	: 87.5	: - .5	: - 9.5	: 77.5	: 77 : + .5
1928-29	: 95.0	: + 1.1	: + 1.0	: 97.0	: 104 : - 7
1929-30	: 86.0	: + 3.0	: - 4.0	: 85.0	: 86 : - 1
1930-31	: 81	: - 6.0	: 0	: 73.0	: 73 : 0
1931-32	: 93	: - 21.0	: + 2.0	: 74.0	: 71 : + 3

1/ The Canning Trade.

CANNED SPINACH

The 1932 pack of canned spinach was reported to be less than 1,000,000 cases which is below the pack of 1931 and smaller than any year since 1921. Prices of canned spinach for the period 1921-22 to 1930-31 have declined rapidly. A part of this downward trend in prices of canned spinach can be accounted for by the rapid increase during recent years in the supplies of fresh spinach and other fresh vegetables on the market during the winter months.

The principal factor affecting changes in canned-spinach prices from one year to the next is the pack of canned spinach. (Table 7.) Another factor of considerable importance, especially during the early part of each season, is the quantity of canned spinach carried over from the previous year's pack. Unfortunately, carry-over data are not available. To determine the effect of carry-over on prices it was necessary to relate the average price of each year with the pack of the previous year. For example, the canned spinach pack in 1930 was about 1,560,000 cases, which was slightly smaller than the 1925 pack, but the average price in 1930-31 was \$1.02 per dozen whereas in 1925-26 the price was \$1.21. One reason for the price in 1930-31 being so much lower than in 1925-26 was the unusually large pack of 1929, whereas the pack in 1924 was very small. Another factor affecting prices of canned spinach is the index of prices of competing canned vegetables. Table 8 shows the results of an analysis of canned spinach prices for the period 1921-22 to 1931-32.

Table 7.- Factors affecting prices of canned spinach,
1921-22 - 1931-32

Year beginning Apr. 1.	Spinach pack 1,000 cases	1/ 3/	Index of prices of canned vegetables competing with spinach, 1926-27 =100	2/
1920-21	685			
1921-22	434		105	
1922-23	1,181		105	
1923-24	1,384		109	
1924-25	1,073		110	
1925-26	1,806		100	
1926-27	1,340		100	
1927-28	1,969		102	
1928-29	2,905		112	
1929-30	4,194		107	
1930-31	1,565		97	
1931-32	1,340		80	

1/ National Canners' Association - 1921-22 to 1926-27, United States Department of Commerce, 1927-28 to 1931-32.

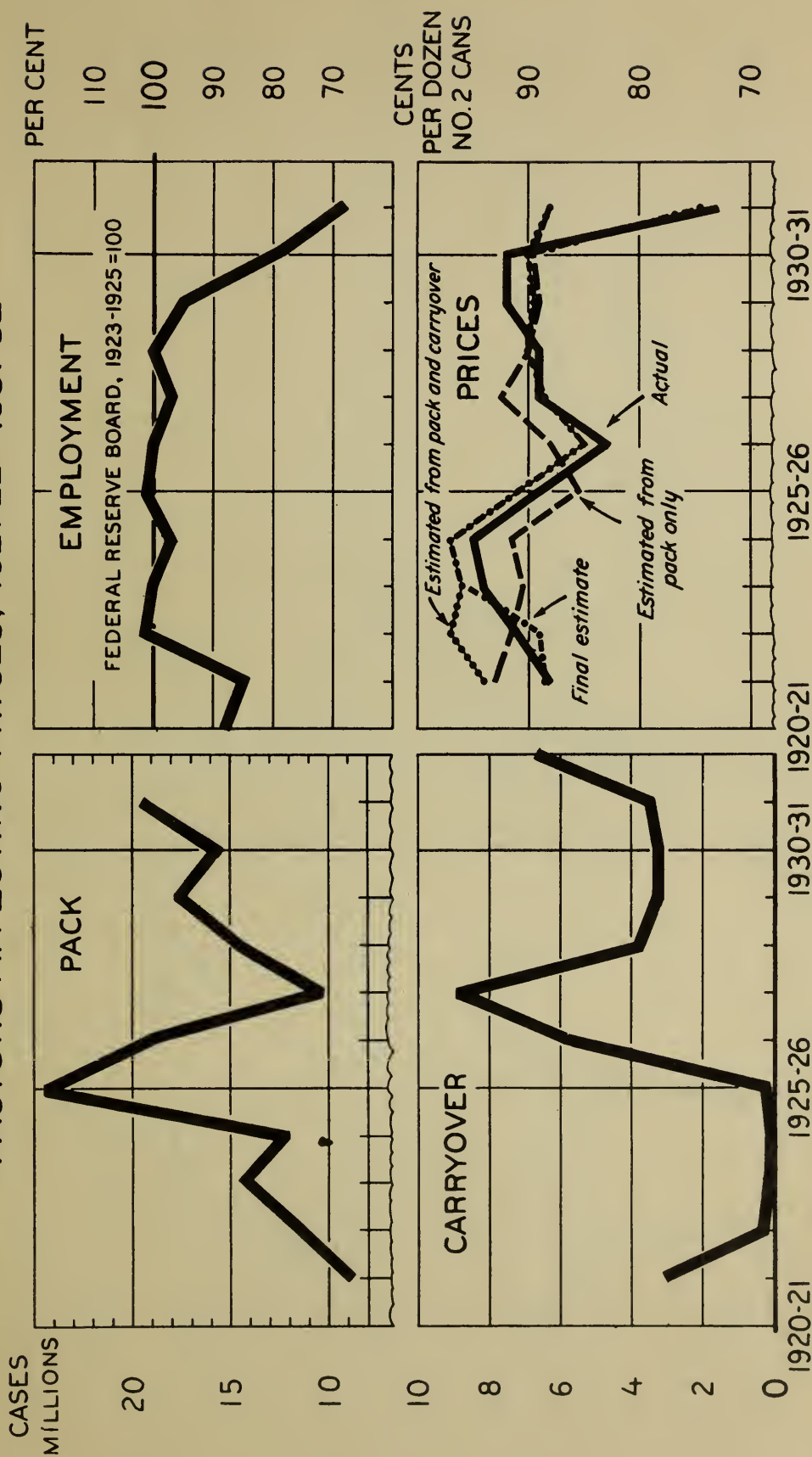
2/ Constructed in the Division of Statistical and Historical Research, United States Department of Agriculture -(Includes prices of corn, peas, tomatoes, beets, snap beans, and lima beans, weights by packs of each.)

3/ 24 No. 2 cans.

Table 8.- Estimated and actual prices per dozen, No. 2 cans of
fancy canned spinach, 1921-22 to 1931-32

Year beginning Apr. 1.	Estimated from pack Cents	Corrections for Previous years pack Cents	Competing prices Cents	Estimated from these three factors Cents	Actual price Cents	Deviations of estimate from actual price Cents
1921-22	127.5	+ 6.5	+ .5	134.5	135	- .5
1922-23	124.5	+ 7.5	+ .5	132.5	132	+ .5
1923-24	123.0	+ 4.0	+ 2.0	129.0	128	+1.0
1924-25	124.5	+ 3.0	+ 2.0	129.5	130	- .5
1925-26	121.0	+ 4.5	- 4.5	121.0	121	0
1926-27	123.0	+ 1.0	- 4.5	119.5	120	- .5
1927-28	120.5	+ 3.5	- 3.0	121.0	121	0
1928-29	116.0	+ .5	+ 2.0	116.5	117	+1.5
1929-30	115.0	- 4.0	+ 2.0	115.0	115	-2.0
1930-31	122.0	-10.0	- 3.0	104.0	102	+2.0
1931-32	123.0	+ 2.5	-24.5	101.0	101	0

CORN, CANNED: ACTUAL AND ESTIMATED AVERAGE PRICES AND CERTAIN FACTORS AFFECTING PRICES, 1921-22-1931-32

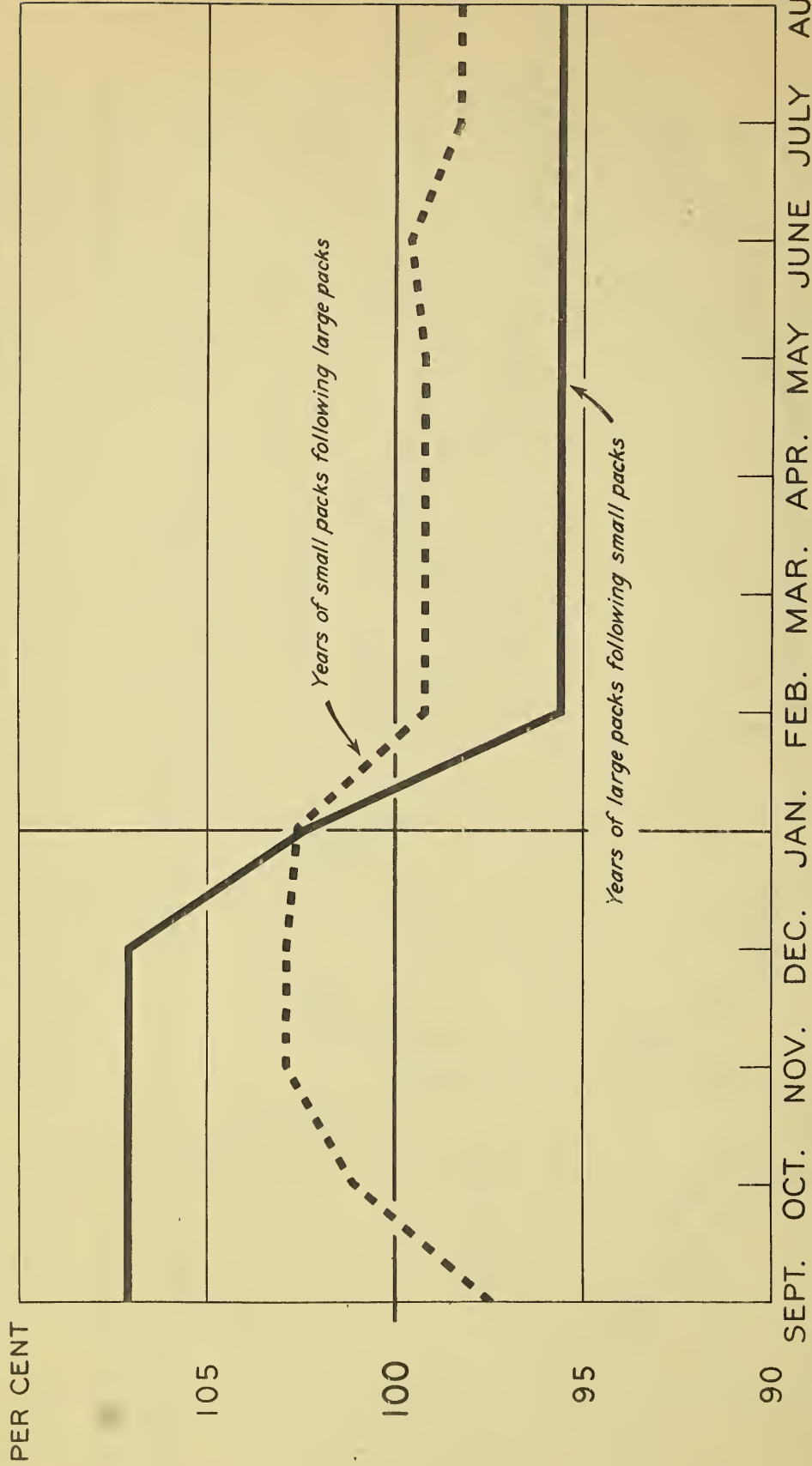


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FIGURE 1 - LEFT HALF SHOWS PACK AND ESTIMATED CARRYOVER. THE RIGHT HALF SHOWS THE FEDERAL RESERVE BOARD'S INDEX OF EMPLOYMENT (1923-1925 = 100), AND ACTUAL AND ESTIMATED PRICES OF CANNED CORN. FIRST ESTIMATE IS FROM PACK ONLY; SECOND ESTIMATE IS FROM PACK AND CARRYOVER; AND FINAL ESTIMATE IS FROM PACK, CARRYOVER, AND EMPLOYMENT

CORN, CANNED: PRICE BY MONTHS, EXPRESSED AS A PERCENTAGE OF SEASON'S AVERAGE FOR YEARS OF LARGE AND SMALL PACKS

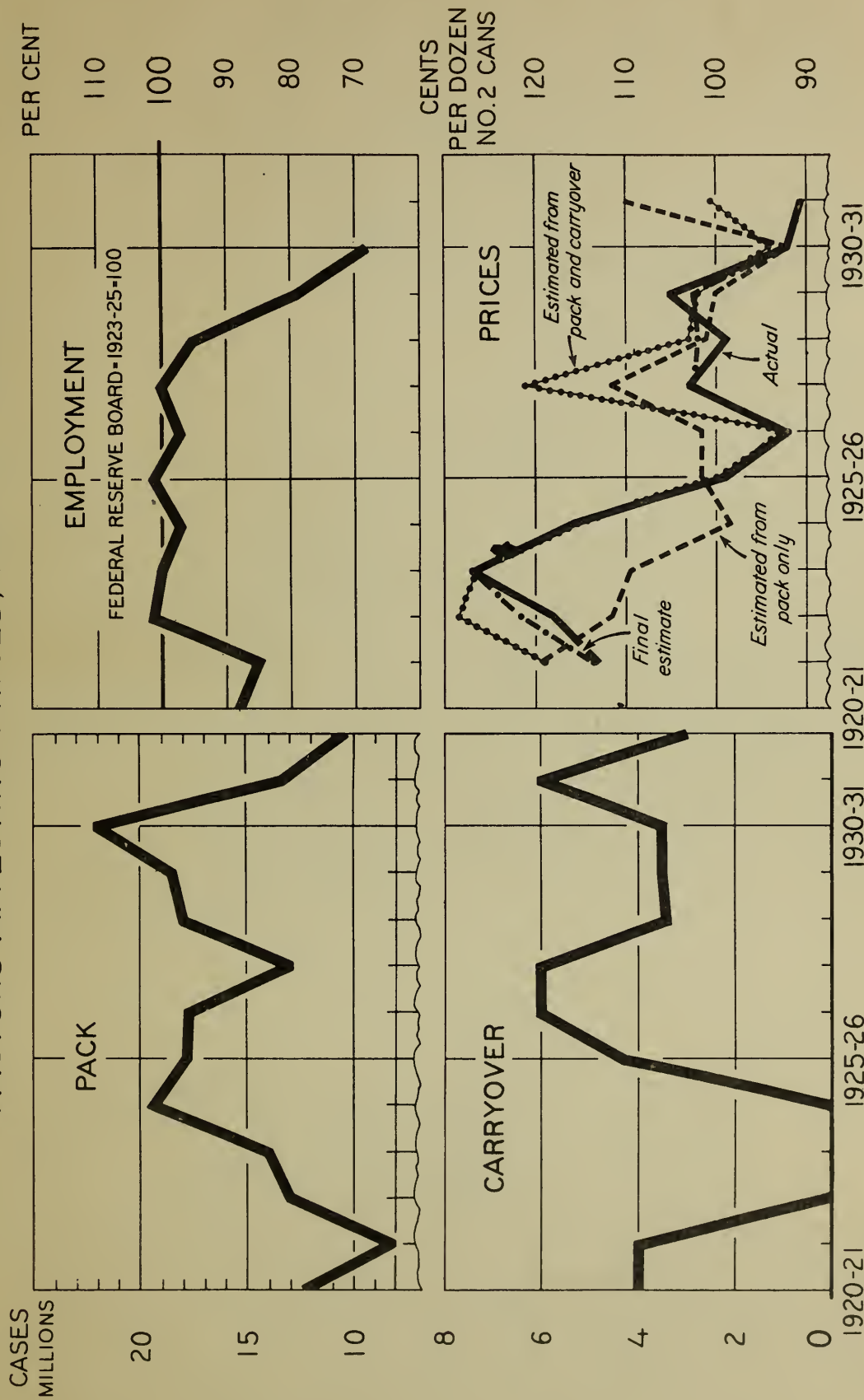


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FIGURE 2 - THE YEARS 1921-22 AND 1927-28 WERE YEARS OF SHORT PACKS AND WERE PRECEDED BY YEARS OF RELATIVELY LARGE PACKS. THE YEAR 1925-26 WAS A YEAR OF A LARGE PACK, AND WAS PRECEDED BY A SMALL PACK

PEAS, CANNED: ACTUAL AND ESTIMATED AVERAGE PRICES AND CERTAIN FACTORS AFFECTING PRICES, 1921-22 - 1931-32



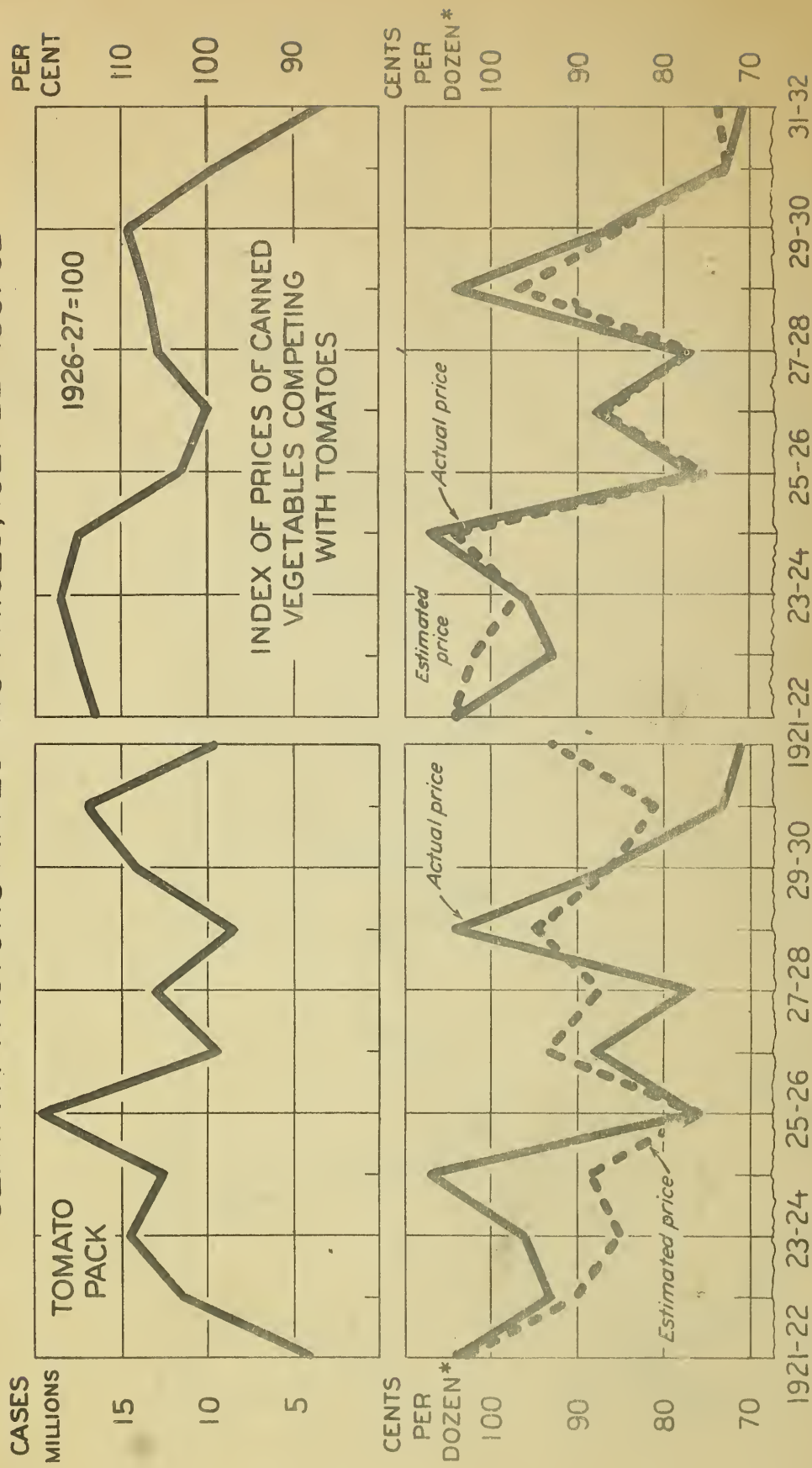
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FIGURE 3 - LEFT HALF SHOWS PACK AND ESTIMATED CARRYOVER. THE RIGHT HALF SHOWS THE FEDERAL RESERVE BOARD'S INDEX OF EMPLOYMENT (1923-1925 = 100), AND ACTUAL AND ESTIMATED PRICES OF CANNED PEAS. FIRST ESTIMATE IS FROM PACK ONLY; SECOND ESTIMATE IS FROM PACK AND CARRYOVER; AND FINAL ESTIMATE IS FROM PACK, CARRYOVER, AND EMPLOYMENT

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TOMATOES, CANNED: ACTUAL AND ESTIMATED AVERAGE PRICES AND CERTAIN FACTORS AFFECTING PRICES, 1921-22-1931-32



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* No. 2 SIZE CANS

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FIGURE 4 - TOP HALF SHOWS PACK AND THE INDEX OF PRICES OF COMPETING CANNED VEGETABLES (CORN, PEAS, STRING BEANS, SPINACH, LIMA BEANS, AND BEETS). BOTTOM HALF SHOWS ACTUAL AND ESTIMATED PRICES. THE FIRST ESTIMATE IS FROM PACK ONLY, AND THE FINAL ESTIMATE IS FROM PACK AND INDEX OF CANNED VEGETABLE PRICES. THE INDEXES FOR THE PREVIOUS YEAR AND THE CURRENT YEAR WERE USED TOGETHER